

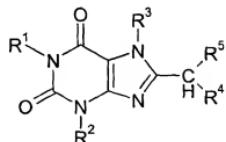
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-12. (cancelled)

Claim 13. (new) A compound of formula



in free or salt form, where

R¹ is hydrogen or alkyl optionally substituted by hydroxy, alkoxy, or alkylthio,

R² is hydrogen, alkyl, hydroxalkyl, alkylcarbonyloxyalkyl, alkoxyalkyl, alkylthioalkyl, alkenyl, cycloalkylalkyl, heterocyclylalkyl, aralkyl in which the aryl ring thereof is optionally fused to a 5-membered heterocyclic group or is optionally substituted by one or more substituents selected from alkoxy, amino, alkylamino, dialkylamino, acylamino, halogen, hydroxy, aminosulfonyl, alkylaminosulfonyl, dialkylaminosulfonyl, alkylsulfonylamino or dialkylaminosulfonylamino,

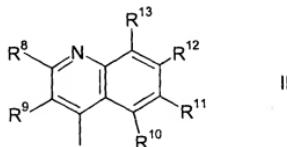
R³ is hydrogen or alkyl optionally substituted by hydroxy, alkoxy, or alkylthio,

R⁴ is hydrogen or alkyl,

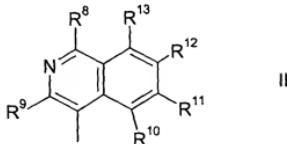
R⁵ is a quinolinyl, isoquinolinyl or oxadihydroisoquinolinyl group optionally fused to a 5-membered heterocyclic group and optionally substituted by one or more substituents selected from halogen, cyano, hydroxy, alkyl, hydroxalkyl, alkoxyalkyl, alkylthioalkyl, alkoxy, alkylthio, alkenyl, alkoxycarbonyl, alkynyl, carboxyl, acyl, a group of formula -N(R⁶)R⁷, aryl optionally substituted by one or more substituents selected from halogen or alkoxy, or heteroaryl having 5 or 6 ring atoms attached through a ring carbon atom to the indicated carbon atom, and

R⁶ and R⁷ are each independently hydrogen or alkyl optionally substituted by hydroxy or alkoxy or one of R⁶ and R⁷ is hydrogen and the other is acyl, or R⁸ and R⁷ together with the nitrogen atom to which they are attached denote a 5- or 6- membered heterocycl group.

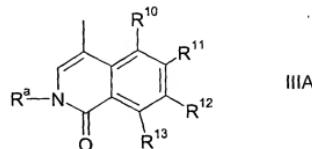
Claim 14. (new) A compound according to claim 1, in which R⁵ is a quinolinyl group of formula



or an isoquinolinyl group of formula



or an oxodihydroisoquinolinyl group of formula



where R⁸, R⁹, R¹⁰, R¹¹, R¹² and R¹³ are each independently hydrogen or a substituent selected from halogen, cyano, hydroxy, alkyl, hydroxyalkyl, alkoxyalkyl, alkylthioalkyl, alkoxy, alkylthio, alkenyl, alkoxy carbonyl, alkynyl, carboxyl, acyl, a group of formula -N(R⁶)R⁷, aryl optionally substituted by one or more substituents selected from halogen or alkoxy, or heteroaryl having 5 or 6 ring atoms, and R⁶ and R⁷ are as defined in claim 1, or R¹¹ and R¹² together with the carbon atoms to which they are attached denote a 5- membered heterocyclic group having two oxygen or nitrogen atoms in the ring, and Ra is hydrogen or C₁-C₄-alkyl.

Claim 15. (new) A compound according to claim 1, in which

R¹ is hydrogen or C₁-C₄-alkyl optionally substituted by hydroxy, C₁-C₄-alkoxy or C₁-C₄-alkylthio, R² is hydrogen, C₁-C₈-alkyl, hydroxy-C₁-C₈-alkyl, C₁-C₄-alkylcarbonyloxy-C₁-C₈-alkyl, C₁-C₄-alkoxy-C₁-C₈-alkyl, or C₁-C₄-alkylthio-C₁-C₈-alkyl, C₂-C₄-alkenyl, C₃-C₈-cycloalkyl-C₁-C₄-alkyl, heterocyclyl-C₁-C₄-alkyl where the heterocyclyl group is a 5- or 6- membered heterocyclyl group

having one or two hetero atoms selected from nitrogen and oxygen atoms in the ring, phenyl-C₁-C₄-alkyl in which the phenyl ring is optionally substituted by one or more substituents selected from C₁-C₄-alkoxy, amino, C₁-C₄-alkylamino, di(C₁-C₄-alkyl)amino, C₁-C₄-alkylcarbonylamino, halogen, C₁-C₄-alkylsulfonylamino, or di(C₁-C₄-alkyl)aminosulfonylamino, and is optionally fused to a 5-membered heterocyclic ring having two oxygen or two nitrogen atoms in the ring,

R³ is hydrogen or C₁-C₄-alkyl optionally substituted by hydroxy, C₁-C₄-alkoxy or C₁-C₄-alkylthio,

R⁴ is hydrogen or C₁-C₄-alkyl,

R⁵ is a quinolinyl, isoquinolinyl or oxodihydroisoquinolinyl group optionally fused to a 5-membered heterocyclic group having two oxygen or two nitrogen atoms in the ring and optionally substituted by one or more substituents selected from halogen, cyano, carboxy, hydroxy, C₁-C₄-alkyl, hydroxy-C₁-C₄-alkyl, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₁-C₄-alkylthio-C₁-C₄-alkyl, C₁-C₄-alkoxy, C₁-C₄-alkylthio, C₂-C₄-alkenyl, C₂-C₄-alkynyl, C₁-C₄-alkylcarbonyl, a group -N(R⁶)R⁷ or phenyl optionally substituted by one or more substituents selected from halogen or C₁-C₄-alkoxy and

R⁶ and R⁷ are each independently hydrogen or C₁-C₄-alkyl optionally substituted by hydroxy or alkoxy, or one of R⁶ and R⁷ is hydrogen and the other is C₁-C₄-alkylcarbonyl, or R⁶ and R⁷ together with the nitrogen atom to which they are attached denote a 5- or 6-membered heterocyclyl group having one or two nitrogen atoms and, optionally, an oxygen atom in the ring.

Claim 16. (new) A compound according to claim 2, in which

R¹ is hydrogen or C₁-C₄-alkyl, R² is hydrogen, C₁-C₈-alkyl, hydroxy-C₁-C₈-alkyl, or C₁-C₄-alkylcarbonyloxy-C₁-C₈-alkyl, C₂-C₄-alkenyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, heterocyclyl-C₁-C₄-alkyl where the heterocyclyl group is a 5-membered heterocyclyl group having one nitrogen or oxygen atom in the ring, phenyl-C₁-C₄-alkyl in which the phenyl ring is optionally substituted by one or two substituents selected from C₁-C₄-alkoxy, amino, C₁-C₄-alkylcarbonylamino, chlorine, bromine, C₁-C₄-alkylsulfonylamino, or di(C₁-C₄-alkyl)aminosulfonylamino and is optionally fused to a 5-membered heterocyclic ring having two oxygen atoms in the ring,

R³ is hydrogen or C₁-C₄-alkyl,

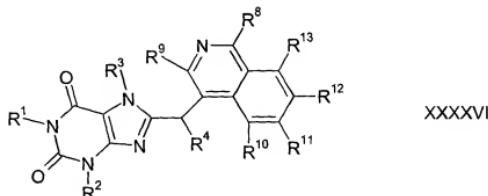
R⁴ is hydrogen or C₁-C₄-alkyl,

R⁵ is a quinolinyl group of formula II, an isoquinolinyl group of formula III or an oxodihydroisoquinolinyl group of formula IIIA, where R⁸, R⁹, R¹⁰, R¹¹, R¹² and R¹³ are each independently selected from hydrogen, halogen, cyano, carboxy, hydroxy, C₁-C₄-alkyl, hydroxy-C₁-C₄-alkyl, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₁-C₄-alkylthio-C₁-C₄-alkyl, C₁-C₄-alkoxy, C₁-C₄-alkylthio, C₂-C₄-alkenyl, C₂-C₄-alkynyl, C₁-C₄-alkylcarbonyl, a group -N(R⁶)R⁷ or phenyl optionally substituted by one or two substituents selected from halogen or C₁-C₄-alkoxy, or R¹¹ and R¹² together with the carbon atoms to which they are attached denote a 5-membered heterocyclic group having two oxygen atoms in the ring, and

R^6 and R^7 are each independently hydrogen or $C_1\text{-}C_4$ -alkyl optionally substituted by hydroxy or alkoxy or one of R^6 and R^7 is hydrogen and the other is $C_1\text{-}C_4$ -alkylcarbonyl, or R^5 and R^7 together with the nitrogen atom to which they are attached denote a 6-membered heterocycl group having one or two nitrogen atoms, or one nitrogen atom and one oxygen atom, in the ring.

Claim 17. (new) A compound according to claim 4, in which R^5 is an isoquinolinol group of formula III in which R^8 is hydrogen, $C_1\text{-}C_4$ -alkyl, halogen, cyano, $-\text{N}(R^6)R^7$ where R^6 and R^7 are each independently $C_1\text{-}C_4$ -alkyl or R^6 and R^7 together with the nitrogen atom to which they are attached denote a 6-membered heterocycl group having one or two nitrogen atoms, or one nitrogen atom and one oxygen atom, in the ring, or phenyl substituted by one or two $C_1\text{-}C_4$ -alkoxy groups; R^9 and R^{10} are each independently hydrogen, $C_1\text{-}C_4$ -alkyl or halogen; R^{11} and R^{12} are each independently hydrogen, halogen, cyano, carboxy, hydroxy, $C_1\text{-}C_4$ -alkyl, $C_1\text{-}C_4$ -alkoxy or $C_2\text{-}C_4$ -alkynyl, or R^{11} and R^{12} together with the carbon atoms to which they are attached denote a 5- membered heterocycle having two oxygen atoms in the ring; and R^{13} is hydrogen or halogen.

Claim 18. (new) A compound of formula XXXXVI



in free or salt form, where

R^1 is CH_3 , R^2 is $(\text{CH}_3)_2\text{CHCH}_2$, R^3 and R^4 are each H, R^8 is CH_3 , R^9 and R^{10} are each H, and R^{11} and R^{12} are each OCH_3 ; or

R^1 is CH_3 , R^2 is $(\text{CH}_3)_2\text{CHCH}_2$, R^3 , R^4 , R^8 , R^9 and R^{10} are each H, and R^{11} and R^{12} are each OCH_3 ; or

R^1 is CH_3 , R^2 is $(\text{CH}_3)_3\text{CCH}_2$, R^3 , R^4 , R^8 , R^9 and R^{10} are each H, and R^{11} and R^{12} are each OCH_3 ; or

R^1 is CH_3 , R^2 is $(\text{CH}_3)_2\text{CHCH}_2$, R^3 , R^4 , R^9 and R^{10} are each H, R^8 is Cl and R^{11} and R^{12} are each OCH_3 ; or

R^1 is CH_3 , R^2 is $(\text{CH}_3)_2\text{CHCH}_2$, R^3 , R^4 , R^8 , R^9 and R^{10} are each H, R^{11} is OCH_3 and R^{12} is H; or

R^1 is CH_3 , R^2 is cyclopropylmethyl, R^3 , R^4 , R^8 , R^9 , R^{10} and R^{12} are each H and R^{11} is OCH_3 ; or

R^1 is CH_3 , R^2 is $(\text{CH}_3)_2\text{CHCH}_2$, R^3 , R^4 , R^8 , R^9 , R^{10} and R^{12} are each H and R^{11} is $\text{CH}\equiv\text{C}$; or

R¹ is CH₃, R² is 4-(N-dimethylaminosulfonylamino)benzyl, R³, R⁴, R⁸, R⁹ and R¹⁰ are each H and R¹¹ and R¹² are each OCH₃; or

R¹ is CH₃, R² is HOCH₂CH(CH₃)CH₂, R³, R⁴, R⁸, R⁹ and R¹⁰ are each H and R¹¹ and R¹² are each OCH₃; or

R¹ is CH₃, R² is 1-methylcyclopropylmethyl, R³, R⁴, R⁸, R⁹ and R¹⁰ are each H and R¹¹ and R¹² are each OCH₃.

Claim 19. (new) A pharmaceutical composition comprising as active ingredient a compound according to claim 1, optionally together with a pharmaceutically acceptable diluent or carrier.

Claim 20. (new) A pharmaceutical composition comprising as active ingredient a compound according to claim 6, optionally together with a pharmaceutically acceptable diluent or carrier.

Claim 21. (new) A method of treating a condition mediated by PDE5 in a subject in need of such treatment, which comprises administering to said subject an effective amount of a compound of formula I as defined in claim 1 in free form or in the form of a pharmaceutically acceptable salt.

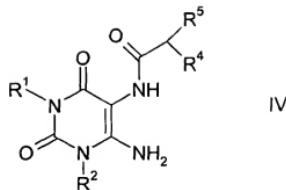
Claim 22. (new) A method of treating a condition mediated by PDE5 in a subject in need of such treatment, which comprises administering to said subject an effective amount of a compound of formula XXXVI as defined in claim 6 in free form or in the form of a pharmaceutically acceptable salt.

Claim 23. (new) A method of treating sexual dysfunction, particularly male erectile dysfunction, in a subject in need of such treatment, which comprises administering to said subject an effective amount of a compound of formula I as defined in claim 1 in free form or in the form of a pharmaceutically acceptable salt.

Claim 24. (new) A method of treating sexual dysfunction, particularly male erectile dysfunction, in a subject in need of such treatment, which comprises administering to said subject an effective amount of a compound of formula XXXVI as defined in claim 6 in free form or in the form of a pharmaceutically acceptable salt.

Claim 25. (new) A process for the preparation of a compound of formula I in free or salt form which comprises

- 1) (a) dehydrating a compound of formula

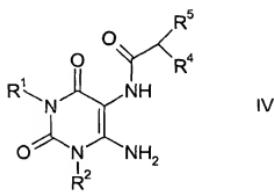


where R¹, R², R⁴ and R⁵ are as defined in claim 1; or

- (b) for the preparation of a compound of formula I in free or salt form where R³ is alkyl optionally substituted by hydroxy, alkoxy or alkylthio, reacting a compound of formula I in free or salt form with an appropriate alkylating agent; or
- (c) for the preparation of a compound of formula I in free or salt form where R² is aralkyl substituted in the aryl ring by alkylsulfonylamino or dialkylaminosulfonylamino, reacting a compound of formula I in salt form where R² is aralkyl substituted by amino with, respectively, an alkylsulfonyl halide or dialkylaminosulfonyl halide; or
- (d) for the preparation of a compound of formula I in free or salt form where R² is hydroxy-substituted alkyl, hydration of a compound of formula I where R² is alkenyl; or
- (e) for the preparation of a compound of formula I in free or salt form where R² is alkyl substituted by alkylcarbonyloxy, appropriate esterification of a compound of formula I where R² is hydroxy-substituted alkyl; or
- (f) for the preparation of a compound of formula I in free or salt form where R² is aralkyl substituted in the aryl ring by amino, hydrolysing a compound of formula I where R² is aralkyl substituted in the aryl ring by acylamino; or
- (g) for the preparation of a compound of formula I in free or salt form where R⁵ is quinolinyl or isoquinolinyl substituted by hydroxy, dealkylation of a compound of formula I where R⁵ is respectively quinolinyl or isoquinolinyl substituted by alkoxy; or
- (h) for the preparation of a compound of formula I in free or salt form where R⁵ is quinolinyl or isoquinolinyl substituted by halogen, halogenation of a compound of formula I where R⁵ is respectively quinolinyl or isoquinolinyl having an unsubstituted ring carbon atom available for halogenation; or
- (i) for the preparation of a compound of formula I in free or salt form where R² is a cyclopropyl group, optionally substituted by alkyl, subjecting a compound of formula I where R² is alkenyl to a Simmons Smith cyclopropanation reaction; and

2) recovering the resulting product of formula I in free or salt form.

Claim 26. (new) A compound of formula IV



where R¹, R², R⁴ and R⁵ are as defined in claim 1.

Claim 27. (new) A method of treating pulmonary hypertension in a subject in need of such treatment, which comprises administering to said subject an effective amount of a compound of formula I as defined in claim 13 in free form or in the form of a pharmaceutically acceptable salt.

Claim 28. (new) A method of treating pulmonary hypertension in a subject in need of such treatment, which comprises administering to said subject an effective amount of a compound of formula XXXVI as defined in claim 18 in free form or in the form of a pharmaceutically acceptable salt.